



JON M. HUNTSMAN, JR.
Governor

GARY R. HERBERT
Lieutenant Governor

State of Utah

DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER
Executive Director

Division of Oil Gas and Mining

JOHN R. BAZA
Division Director

Memo

DATE: April 11, 2008

TO: Minerals File, Minerals Program – Mining initial _____

THRU: Susan M. White, Mining Coordinator – Mining initial _____

FROM: Beth Ericksen, Mining Engineer – Mining initial _____

SUBJECT: Lakeview Rock Products Mining and Reclamation Plan Approval Including Variance

The focus of this memo is to outline concerns regarding the Lakeview mining and reclamation plan. It is my understanding the plan will be approved and a variance will be granted that will allow highwalls to remain at the completion of mining.

On March 6, 2008, a Division review of a June 4, 2007 plan was completed. The content of this review outlines and expresses concerns associated with the plan. Primarily, the greatest issue associated with stability and public health and safety is the Division approval of the highwall variance as part of the Notice of Intention to Conduct Mining Operations.

I have extracted some stability and stability related comments from the March 6, 2008 Division review:

The figure labeled "VIEW: Typical Bench Section, June 6, 2007" should include the bench face angle and inter-ramp slope angle. Three "typical" sections should be shown in this figure, one for each of the proposed inter-ramp slope angles, i.e., 60° in the limestone, 50° in the siltstone and conglomerate, and 40° in the cemented gravel. (BE)

A geology map is required that identifies faults (strikes and dips), rock types, interbeds, and predominant joint (bedding and cross joints) orientations to help demonstrate generally stable pit wall configurations. The current and future disturbance areas should be superimposed on the map.



Memo

Page 2 of 3

Lakeview Rock Products M/035/020

The submittal indicates that material is accessed through drilling and blasting. Typically, this mining method entails operational highwalls. If that is the case, more information is required describing the maximum height of all slopes that include highwalls and benches, the width of the benches, bench face width and maximum bench face angles. If there are highwalls, geologic explanation is required that summarizes among other pertinent concerns; their geologic orientation to maximize stability, weakness zones, and resistance to erosion. (BE)

Slope Stability

If a mined area exists, but is not currently being worked, what measures are implemented to ensure it is environmentally stable? Is there a monitoring program in place to ensure slope stability regarding current slopes? (BE)

Outline the projected impacts to slope stability and what actions are implemented to mitigate the impacts. Please include in the narrative that the pit will be managed according to MSHA safety guidelines and the mining and reclamation plan. Also include information that supervisors or appropriate designated personnel will regularly monitor the slopes and benches. This information requested is not all-inclusive, as there are other important details that are required; specifically pertaining to the site geology, groundwater, and faulting. (BE)

Slope Stability Report IGES (Oct. 7, 2004)

Section 6.4.1, The fact that Lakeview Rock Products, Inc (or their predecessor) contracted with IGES to conduct this slope stability study is commendable, however, a number of potential problems with the IGES analyses, conclusions, and recommendations have been identified. Note the title of the October 7, 2004 IGES report includes the phrase "Preliminary Engineering Analyses." Other phrases used in this report including "preliminary analysis," "present level of data," "significant data gaps," "lack of substantive data," and "limited quantitative basis" indicate the general lack of comfort IGES had with the input parameters necessary to perform these stability analyses. (BE)

The IGES report does not contain a plan map of the proposed final pit design, which was analyzed in this stability investigation. Unfortunately, without a plan map of the proposed pit, it is not possible to ascertain whether the current pit design resembles the pit wall analyzed by IGES in 2004. (BE)

Although the IGES report does not contain a geologic map of (i.e., a geologic projection to) the proposed pit, the sections on pages 4 to 9 illustrate the simplified geology that IGES modeled. (BE)

Based on descriptions in the Oct-04 IGES and Jun-07 JBR reports, the *cross section shown on page 9 (IGES, Oct-04)* is thought to represent the recommended final pit design configuration. The proposed slope is a compound slope with a 60° lower segment, 50° mid-section and 40° upper segment. The proposed cut slope height is 900-ft. The lowermost 450-ft section is composed of limestone at 60°.

Above the limestone is a 200ft high section of siltstone at 50°. The siltstone is overlain by 75-ft of conglomerate at 50° that is capped by 17-5ft of cemented gravel excavated at 40°. Please provide clarification by indicating if the cross section represents final design configuration. (BE)

It is my understanding the June 4, 2007 Notice of Intention to Commence Large Mining Operations (NOI) is being withdrawn by the company. In response to the NOI withdrawal the Division will 'withdraw' the March 6, 2008 review and proceed with approving a two year old plan including granting the highwall variance.

A meeting with Lakeview Rock Products, Inc. occurred on April 9, 2008 where they were advised that plan revisions and amendments would be required once the plan is approved. The plan modifications are required due to the inadequacies of the NOI. However, I have been advised that variances are not reversible, and as outlined in this memo there are many risks associated with granting a variance at this time.

It is my suggestion that the Operator perform a full-scale and complete slope stability study prior to the Division approving a permanent variance associated with the NOI. In addition, the NOI must be updated and modified immediately.

The Division's role as a permitting and regulatory agency is to ensure that the environment is safeguarded while protecting public health and safety and to preserve the economic and physical well-being of the state among other important factors.